

**Parasites Reared from Larvae of the European Corn Borer,
Ostrinia nubilalis (Hbn.), in Massachusetts, 1971-73
(Lepidoptera, Pyralidae)^{1,2}**

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Abstract: Three exotic *Ostrinia nubilalis* parasites; *Eriborus terebrans*, *Macrocentrus grandii*, and *Sympiesis viridula* were detected in Massachusetts along with two native species; *Aplomya caesar* and *Lixophaga* sp. Of these, *M. grandii* was by far the most important, accounting for over 92 per cent of the borers parasitized.

During a 1971-73 study of natural control of the European corn borer, *Ostrinia nubilalis* (Hbn.), 1498 last instar borers were examined for parasites. These borers were collected from the 10 Massachusetts localities listed in Table 1 and held individually in shell vials. The parasites and the percentages of borers from which they emerged are summarized in Table 1.

Of the seven exotic *O. nubilalis* parasites listed as established in the United States by Baker *et al.* (1949), only two, *Eriborus terebrans* (Grav.) (Ichneumonidae) and *Macrocentrus grandii* (Goid.) (Braconidae) were reared from these borers. A third imported parasite, *Sympiesis viridula* (Thoms.) (determined by B. D. Burks) (Eulophidae), hitherto unreported from Massachusetts, was found overwintering as pupae, three in Amherst and two in West Bridgewater. Also *E. terebrans* was found only in two localities and only in limited numbers (Table 1). Conversely, *M. grandii* was found in all 12 collections, with percentages of parasitization ranging from 6.3 to 60. A number of colonies of this polyembryonic wasp failed to produce adults. The successful ones averaged 19.1 individuals for the 98 colonies containing only males, 18.0 for the 111 containing only females, and 29.0 for the 21 colonies containing both sexes.

Two native tachinid parasites were also reared. *Aplomya caesar* (Ald.) was present in five collections but accounted for less than one per cent of the over-all parasitization. A species of *Lixophaga* was found in one collection, killing at

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TABLE 1. Parasites reared from *Ostrinia nubilalis* in Massachusetts, 1971-73.

Location	Date	No. of borers	Per cent <i>M. grandii</i> (a)	Per cent <i>E. terebrans</i> (b)	Per cent <i>A. caesar</i> (c)	Per cent <i>Lixophaga</i> sp. (c)	Per cent unidentifed (d)	Total per cent parasitization
Barnstable Co. (E. Sandwich)	VII-23-73	60	30.0	0	0	0	0	30.0
Essex Co. (Danvers)	VII-24-73	11	9.1	9.1	9.1	0	0	27.3
(Ipswich)	VII-12-73	60	25.0	0	0	0	0	25.0
(Waltham)	VII-30-73	60	11.7	8.3	0	0	0	20.0
Franklin Co. (S. Deerfield)	X-1-71	300	25.7	0	1.0	0	0	26.7
Hampden Co. (Holyoke)	VIII-4-73	60	8.3	0	3.3	8.3	10	30.0
Hampshire Co. (Easthampton)	VII-28-72	60	15.0	0	0	0	0	15.0
Norfolk Co. (Attleboro)	VII-16-73	60	28.3	0	1.7	0	0	30.0
Plymouth Co. (Bridgewater)	VII-30-73	32	6.3	0	0	0	0	6.3
(W. Bridgewater)	VIII-3-72	60	10.0	0	0	0	0	10.0
	X-15-72	675	21.0	0	0.7	0	0	21.7
	VII-20-73	60	60.0	0	0	0	0	60.0
Over-all		1498	22.4	0.4	0.8	0.3	0.4	24.3

(a) *Macrocentrus grandii* (Goid) (= *gifuensis*) determined by P. M. Marsh.

(b) *Eriborus terebrans* (Grav.) (= *Horogenes punctorius*) determined by R. W. Carlson.

(c) *Aplomya caesar* (Ald.) and *Lixophaga* sp. determined by C. W. Sabrosky.

(d) Six dipterous puparia, possibly additional *Lixophaga*.

least 8.3% (18.3% if additional similar pupae which failed to emerge were *Lixophaga*).

The 4 parasites listed in Table 1 killed 24.3% of the borers. However, *M. grandii* accounted for over 92% of this mortality, with an over-all parasitization of 22.4% of all borers examined. It is obvious from these data that *M. grandii* is by far the most important parasite of the corn borer in Massachusetts.

Literature Cited

- BAKER, W. A., W. G. BRADLEY, AND C. A. CLARK. 1949. Biological control of the European corn borer in the United States. USDA Tech. Bull. 983: 185 pp.